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Eng Soc's Declining Trend, Council Elected

Arnold Choi
Chem Eng 9T9 + PEY

Election Results

Eric Moncrief
Eng Sci 0T0

Student politics in at U of T is honestly not the most exciting show on campus. Engineers are generally stereotyped as the least attentive group to student politics. There are traditionally many empty ballots every year after the polls have been closed, which means that very few people actively partake in the matters of the Engineering Society's Governing Body.

This situation is rather ironic since the Engineering Society claims itself to be the driving "spirit" of the U of T student body.

Only 7% of engineering students took part in the elections this year. (Keep in mind, there are about 4500 engineers at U of T). This means that while each and every day of our Skule lives are influenced by members of the Council, it is only a handful of people that end up determining who will be on that governing council the following year.

Engineering students are generally not involved in campus wide politics either. It was quite clear last year when Rob German (Chem Eng) ran for SAC's Governing Council, engineering students could have played a more active role to help put the first engineer on the SAC council. To our credit, the voter turn out for that election was the largest ever.

It is true that when an Eng Soc person runs for SAC, (Marcus Lam this year), Engineers come out and vote in mass. However, it is more typical to see



engineering students having the lowest voters turn-out. In the 98 Engineering Society election, only 9% of engineering students voted, compared to 38% of SAC's student body during the SAC elections.

There is a lack of enthusiasm about representation, spirit and participation behind the walls of Galbraith. Would Sir Sanford Flemming and J. Galbraith be rolling in their graves if they knew the institutions they helped forge were unleashing indifferent-minded graduates into society? Can a graduating class of U of T Engineers make significant contributions to an innovative-starved nation if they can't be bothered to involve themselves in matters of our own Society?

Next year's Council has a great challenge ahead of them. Only time will tell, if they will succeed. We can only blame ourselves if they don't.

In the grand tradition of the Faculty of Applied science and Engineering, the Engineering Society held its annual elections last week. The results came back with customary Engineering efficiency, and traditional lack of voter turn-out. Here are the final results from the election. The Electorate are:

Sean Voskamp: President.
Paul Graham: VP External.
Karen Caputo: VP Finance.
Tim Christie: VP Activities.
Chris Peressotti: VP Internal.

Peressotti was available for comment on the election.

"Thank-you, Skulemates, for electing me, Chris Peressotti, as your VP Internal 1999-2000! It was a tough competition, and I'd like to thank the other candidates for an interesting race.

So you elected me: Now what? Well, I plan to be a damn good VP Internal, meaning that I hope to play an integral role in keeping the inner workings of the Engineering Society well-oiled and in top form.

This will take superior organization and commitment to the society, and while I have more latter than the former right now, I'm working on it. I look forward to serving the Engineering Society for the year to come, and when it's all over, I'll be able to look back on it. See ya on the flip-side (of summer vacation)."

None of the other winners were available for comment.

Did Somebody Say Robot?

Allan Kortan
EngSci 0T1

Put a bunch of extremely bright, eminently capable, egregiously hard-working University of Toronto students in one class and what do you call them? Eng Scis (short for Engineering Science students - get with the lingo). Put those same Eng Scis in a class called Engineering Design and now what do you call them? Anything you want; those Eng Scis are going to be so busy building their majestic design projects, you can call them names until Bill Gates rules the world and they are not going care.

So what exactly is a design project, you ask? It is the University of Toronto's way of feeding EngScis a bit of their own medicine. The design project is an

undertaking whereby teams of three or four students design and construct a fully functioning robot (yes, a robot) of such ingenuity and elegance that it amazes not only peers and professors, but also the constructors themselves.

Project proposals for this year include:

i) Tibetan Sand Art Robot. This robot will take unsorted sand of several colours, sort it by colour, use it to draw graphics, and upon completion autonomously clean the sand from the drawing surface into the container from which the unsorted sand was taken.

ii) Personal Droid. This robot will be capable of helping an individual in some personalized way (i.e. a golf caddy robot that follows a person around a golf course carrying one's golf bag and suggesting clubs for various situations: a waiter droid capable of fetching drinks and food and tending to one's needs; a tennis-bot that acts as a ball-boy while you play; even a droid that ties your shoes).

iii) Balloon Dribbler. This robot will track and bounce a balloon upward as many times as it can within a closed area. About fifteen groups are building this competition-bot; the one with the most bounces and least blunders will be the vic-

tor.

iv) A myriad of other student proposed robots. The only restriction: the robot must fit in a locker 36" long, 30" wide, 20" tall, and weigh less than 100 lbs. This leaves the door open for some intense displays of imagination, but also for some even more intense error and frustration as students tinker with their non-mainstream robot and find they have no one to turn to for support.

To fulfil their proposals and, indeed, to pass Engineering Design, Eng Scis are going to have to reach deep within themselves and bring to life a machine that may well be the pinnacle of their undergraduate careers.

Interested in seeing the fruits of Eng Sci labour in action? Come attend the public demonstrations on March 31st and April 1st. You will not believe your eyes.

For more information on Engineering Design, Engineering Science, or the U of T Institute for Aerospace Studies, please visit the web site:
<http://www.aerospace.utoronto.ca/>

the Cannon

AN OFFICIAL PUBLICATION OF THE UNIVERSITY OF TORONTO ENGINEERING SOCIETY

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PLEASE NOTE

The Cannon is a medium through which undergraduate engineering students can express their opinions. The views expressed herein are those of the author and do not necessarily represent those of the editors or the Engineering Society unless so indicated.

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Editorials & Opinions...



From the Editor
Arnold Choi

CO-OP: Academia to Marketability

"Hello. I'm looking for Canadian high school and/or university students who have lobbied their schools to make changes their courses (content, courses offered, etc.) in order to make them more career-oriented. Interestingly enough, the debate of whether or not to teach "career" skills versus general ones was an ongoing one in most educational institutions. Many students felt they were being short-changed by being taught theory and principles, when they were of the belief that more practical skills were of greater benefit in their subsequent search for employment." - The Edge Magazine

I would question the idea of whether or we should be moving towards, or emphasizing "marketable/career" skills in high school all together. Education, should not be exclusive to skilled labour and industrial experience, but rather to enlighten the soul, and of the world we live in. Courses like History, English, Philosophy, Psychology should not be considered as non-essential, or non-career related courses, but rather a means to greater end which is to broaden the scope of one's mind. If we limit our education to what the industry demands, the school becomes no more than a training ground that feeds the corporate market. Our ability to communicate as human beings becomes reduced to knowing only what we've been trained to do.

Maclean's publishes a University Issue every year, in which the magazine compares Canadian institutions and discusses current academic trends. This year, the feature article sadly described the slope Canadian schools are taking towards marketable skills and the government's encouragement of it. The article spoke as if there is nothing anyone can do to re-focus the University on liberal thinking and humanities, because decreasing funds are forcing schools to suck up to affluent tech. companies. Of the three parties involved, the students are left in the dust by gaining Universities and technology firms. The companies get cheap labour during "co-op" terms, and the promise of highly trained graduates, while the Universities get the extra funds for crap like robots and computer labs. The students get to watch their "irrelevant" Humanitarian, or Arts courses disappear.

Co-op (or PEY) is the most disturbing example of the shift from Academia to Marketability. M. Jakubik, Waterloo computer science and english major, writes: "On Co-op terms, the freedom to associate with students is diluted by married office workers who have had families for years and are securely admitted into the functioning system. A student's mind, at the critical time when it is best equipped to contribute radical new ideas to society, is imprisoned by immersion in parental stability. Logically, when thirty to forty years of your life will be spent working, why would you take an extra four to "prepare" for all that? Will not the first four years of work be the same as four years as a co-op in school?"

Western students are told their entire lives that they must "prepare for the next grade." In grade five, you have to prepare for junior high; in grade eight, you have to prepare for the impossible rigour of high school; and in grade 12, you have to prepare for the academic severity of University.

Like they were all one big blending pile of Play-Do.

In your freshman year, you are merely one year older than when you began grade 12. Rationally, you are merely moving from a small building to a larger building. Rationally, in terms of age, population, and amount of homework, entering University is merely a change in scale, otherwise the same as high school.

But it's not.

The problem with this sort of reasoning is that it fails to explain the human sense of anticipation. In reality, nothing can prepare you for University, because you enter with an expectation that things will be different. And that expectation, compounded by the expectations of the thousand others who just came in behind you, affects the University. Suddenly, people are acting different because they expected things to be different. And nobody could have predicted or prepared the way for that change.

Likewise, *University is not a time to be preparing for Employment.*

Yet, in a society dependent of the reasonable, that preparation is attempted to full utilities time and again. The role of a University is lost in favour of a sort of prelude to work. Because anticipation confounds rational modelling, we fail to imagine that University is actually a completely separate institution from any of its temporal neighbours. If a student decides to do post-graduate work, what justifies the employment-oriented Co-op program? What if a student decides to play music professionally, or simply paint masterpieces in the country? What benefits remain from a Co-op program in which the biggest employers are C++ factories?

Co-op (in University) and "Career-oriented" courses (in high school), by general awe in a technology-driven system, continues to thrive despite its continual restriction on a young person's future. The dangers of co-op are not passive. The amount of time taken away from traditional student life destroys the amount of creativity in society. For many years now, science and business have undeservedly come into acceptance as the primary contributors to humanity. Unfounded and contradictory, this assumption has been continually supported by Western politicians and business leaders like Mr. Bill, Ontario Premier Harris, or Co-op's champion James Downey or even "Career-Oriented Boards of Education". Negligence of creativity by leaders and teachers is discouraging, and the resulting lack of direction makes it easier to sell money as the single human goal. We don't need more people learning to be Suits.

Making Babies The High-Tech Way

The Ryans
Special To The Cannon

Maybe you've just gotten married and have vague plans to start your family in a couple of years. Maybe you have one child and think you'll have a second with the same ease. Or maybe you're just beginning to wonder why - after three months of trying (or six or eight) - you're not yet pregnant. Whatever your situation, know this: If you want a baby, you can't assume it will just happen. As you're reading this, some six million women and their husbands are facing infertility. They're wondering what they need to do next to become pregnant, frustrated that they didn't realize sooner just how big an impact age or medical problems were going to have on their lives.

No matter how much the word "infertility" is in the air, it is still a shock to realize that you are one of the ones who can't just get pregnant when you want. First you may joke, "Guess I didn't have to be quite so

careful about birth control." But gradually, you have to give up your fantasies - "we'll have our child in June, so I can take the summer off" - and confront the fact that, for you to have a baby, it is going to take significant effort. As you undergo medical tests and treatments, a new techno-vocabulary dominates your life and a new self-image - "patient" - emerges.

Given the exquisitely intricate orchestration of hormones and engineering it requires, it seems astonishing anyone ever has a baby. The stunning complexity means it is very easy for a glitch in any part of the system to throw the process off. Some of the malfunctions may have been with you since birth; others are the legacy of infection, lifestyle, age, or frustratingly, factors no one can explain. In fact, for about one in five infertile couples, no cause will be found, a condition known as "unexplained infertility".

At some point - if you're struggling to conceive - you'll probably find yourself

muttering, "Bet if I were an unmarried teenager, I'd be pregnant by now." Actually, you'd be on to something - not the marriage part, of course, but the youth. In your twenties, you have a 20 to 25 percent chance of becoming pregnant each month. By your forties, however, that drops to just 10 to 15 percent. Age is the factor that, almost always, will drive the decisions couples have to make about infertility treatments.

That is, your age - or, more precisely, the age of a woman's eggs. When born, a woman's ovaries contain all the eggs she will ever have. Each month after you reach puberty, if things are working properly, a new egg will mature and be released, some 400 times in a lifetime. Generally, however, the most fertilizable eggs are released earlier in life, somewhat like the "survival of the fittest" theory. The decline isn't completely steady, however. Throughout a woman's twenties and early thirties, fertility drops gradually. But then, at age 37, there's a sharp falloff.

What about men? Because a man is continually producing new sperm - every day - his age doesn't influence his fertility. But other factors do. Aside from strictly physiological problems, lifestyle figures in too: Alcohol, drugs, cigarettes, and a diet low in certain nutrients (zinc especially) have all been shown to lower sperm counts or cause sperm to become abnormally shaped. You may be surprised to learn that a normal semen sample contains anywhere from 20 million to 200 million sperm per milliliter. However, when the sperm count falls below 20 million, pregnancy rates begin to fall!

The good news, however, (if there's anything good to be said about infertility) is that there is more real help available than ever before. But there is also a lot of incompetent treatment out there, not to mention hype. Infertility care is a highly competitive, for-profit business. You need to sort through what you hear and learn to ask the right questions. Then, you can get the car that has the best chance of working for you.

For many couples, relatively noninvasive, low-tech procedures will work. However, many of these procedures are costly and take time. By going quickly or even directly to high-tech methods, however, you may both save precious time as well as cut your losses sooner.

These are the superstars of infertility treatment, the procedures that have made pregnancy possible for couples who, not long ago, had no chances whatever - women whose tubes are completely blocked, for example, or men who produce no sperm at all. Basically, the treatments all start the same way: A woman takes a series of different drugs to stimulate ovulation (and to produce multiple eggs). Then, while she's sedated, the doctor retrieves the eggs from the ovary.

Everything that follows egg retrieval - where fertilization occurs, how it's achieved, and at what point the fertilized eggs are transferred back to the woman's body - is a variation on a theme. All of these processes require not only experienced physicians, but skilled laboratory biologists

(embryologists), to oversee the development of the eggs and - if a woman produces more embryos that can be safely transferred - freezing of the embryos for possible future use.

In vitro fertilization (IVF), the oldest and most widely used assisted reproductive technology. Doctors remove eggs from a woman's ovary and place them in a glass (petri) dish. A sperm sample is then placed in the dish. If all goes well, the eggs are fertilized

erage.

It's hard enough to realize that you're not going to be able to conceive the "regular" way. On top of that, couples turning to high-tech procedures may have to grapple with difficult issues.

Are High-Tech Babies Healthy? Generally, IVF babies are no more likely to suffer birth defects or other abnormalities, studies show. But male babies conceived through ICSI do have a higher risk of certain genetic defects. The reason: Men who have extreme infertility problems (very low sperm counts or no sperm at all) may have an inherited defect on their Y-chromosome, which they in turn may pass to their sons.

Too Many Babies? According to U.S. figures, 28 per cent of all assisted-reproductive technology births were twins, triplets, or higher-order births. You can, however, avoid the risk of multiple births by limiting the number of embryos that are

transferred back to the mother. But then you also cut the chances of success. Is there a happy medium, so to speak? In this regard, many specialists now believe that checking the quality of embryos might be the ticket, and have developed the best "formula" for maximizing pregnancy rates while limiting higher-order multiple conceptions.

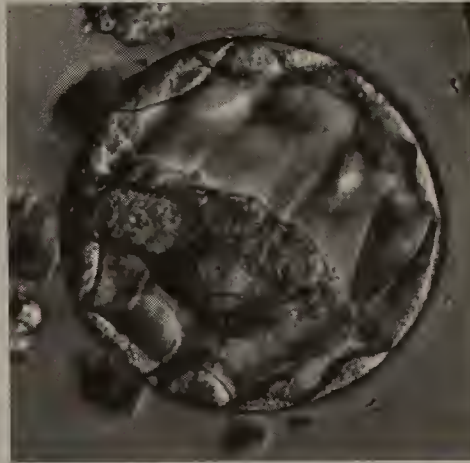
How Long Should You Try? It appears that IVF is not like rolling dice, where the more rolls, the greater your odds of success. Rather, couples with the fewest problems are more likely to get pregnant "on an earlier throw"; those who are older or who have more medical problems are less likely. Nor, obviously, do such couples' chances improve with time. Finances aside, the latest numbers suggest that it's worth trying at least three cycles. After more than four cycles, however, pregnancy rates drop significantly. At that point, couples may want to explore other technologies (such as using donor eggs) or turn their energies to other ways of creating a family or having children in their lives.

Linda and Michael Ryan are one such couple. They sought fertility treatment only

6 months after they had married. The Ryans felt that time was of the essence, considering that Linda was 39 years old when she and Michael married. Following a battery of tests, the only problem revealed was that Michael's sperm count was somewhat low, that is, below 20 million per milliliter. Linda was placed on fertility drugs to increase the number of eggs ovulated and underwent intrauterine insemination, where the sperm were placed directly into her uterus. "Initially, I was very excited about the process, and I was sure I would get pregnant the first time" she says. However, after a total of seven attempts only one pregnancy resulted, which ended in miscarriage. The Ryans then decided on the more aggressive, high-tech IVF/ICSI treatment. "Again, I was sure that this would work" Linda said. However, despite producing a large quantity of eggs, with a resultant high number of embryos, a pregnancy was not achieved after two attempts. With this procedure, the sperm count problem was circumvented, but time had passed and Linda was now 43 years of age - without a doubt, the quality of her eggs had deteriorated. Looking back, Linda and Michael sadly realize that they may have fared better had they taken an aggressive route in their treatment from the very beginning.

The Ryans, however, did not give up. They recently consulted with a clinic in the United States, ranked as one of the best in the world for older women. They received both good and bad news - while their chances of achieving a pregnancy using Linda's eggs would be only 10-20 percent with a 50% miscarriage rate, using donor eggs would give them a 65-70% chance of success per try. Fertility specialists now know that the age of the eggs has more bearing on whether an older woman can successfully carry a pregnancy to term, than does the age of the woman's uterus. Faced with these statistics, the couple have decided to forego using Linda's eggs, and are now involved in the arduous task of locating "donor" eggs. Their ad appears on Page 777777.

At this point, you may ask - why not adopt? Michael Ryan, however, who himself was adopted, was eager to adopt, and he and Linda began their research. "It became clear to us, however, that our chances of adopting were also pretty slim" says Michael. "There are fewer and fewer babies available, with many couples turning to foreign countries in search of a baby" says Linda, who researched adoption in both China and Russia. The Ryans' research revealed that some countries place an age limit on the adoptive mother, costs to adopt often exceed \$25,000, and the process itself is lengthy, often taking more than a year or two to finalize.



Blastocyst transfer after culturing for 5 days in sequential culture media is a relatively new technique that can result in high pregnancy rates with lower triplet rates

and begin to divide, first into a two-celled embryo, then four-celled, eight, or more. At one of those points, the embryos are transferred into the woman's uterus, where, hopefully, at least one implants and begins to grow into a baby.

Gamete Intrafallopian Transfer (GIFT), a woman's eggs are retrieved from the ovary, mixed with the sperm, then immediately placed in her fallopian tube, where fertilization can take place as it does naturally.

Zygote Intrafallopian Transfer (ZIFT), where fertilization takes place in the petri dish, but the fertilized eggs are transferred (before they've become two-celled embryos) into the fallopian tube.

Intracytoplasmic Sperm Injection (ICSI) is a truly stunning technique, where a single sperm is injected into an egg. The process then continues as with IVF.

Intracytoplasmic sperm injection (ICSI) is also used on a regular basis, and involves micromanipulation of the sperm and egg whereby a single sperm from a sample is injected into the egg. This is performed in cases where the sperm count is very low, or where the motility of the sperm is below av-

Do you have something to sell?

Do you have something you want to buy?

The Cannon will be creating a Classified section for all members of the Engineering Society in the issues to come.

You can submit your ad by dropping it off in the Cannon mailbox, or email it to cannon@skule.ca.

Please include: Name, Phone Number, Email Address, Program/Year.

Your message (excluding your personal information) should not exceed 300 characters.

Oleg Chmelev
Former Nursing Student
George Brown College

My name is Oleg Chmelev, I am a former nursing student of George Brown College. I have been terminated from the Program for criticizing the poor quality of the curriculum. I would like to take this opportunity to raise my voice to let you know why.

The curriculum offered by the GBC Nursing Faculty is a national disgrace. Its quality is so poor that the only way for students to learn something is to do it on their own. We cannot get anything of substance from our teachers.

We have resorted to stage skits in class as a form of learning, in addition to painting posters for presentations.

More disturbingly, we do not even have a course on pharmacology. It simply isn't in the curriculum, and as essential as it may seem, GBC does not seem to agree.

Our only classroom activity in that area consists of ONE HOUR of self-directed exercise where we copy a few parameters on a half-dozen drugs from a drug reference book into a preprinted form. These parameters include the drugs' generic name, trade name, therapeutic effects, side effects, contraindications and dosages.

That was all. You can see simply from the parameters above that these articles would be key to a nursing student who must administer these drugs to their patients. Graduates from GBC will graduate with limited professional knowledge of pharmacology.

Furthermore, our course in Pathology/Therapeutics is limited to definitions. This

is unacceptable.

George Brown is probably the only college in the GTA which has so-called "community projects", where you have to find a person with "deficits" and to teach him/her how to overcome those "deficits". Realistically, this simply boils down to (as GBC nursing students put it): finding an alcoholic or a drug addict and teach him/her the "good ways."

This is a disgrace!

In our attempt to change things, we have created a Website. It describes in great detail the sorry state of affairs at the Faculty. We believe there is enough material to educate people on what is happening at George Brown College so something can be done to change the situation. You can find more information at: <http://www.tamotec.com/nursing/>.

George Brown Nurses: We Need Your Help!

Martin's Corner...

How about excusing yourself before you leave class?

Last Tuesday, I attended a seminar on job opportunities for arts graduates. What with all the pressure engineers have put on artists these days, these desperate little lectures almost seem like futile cries for mercy. While we know that an engineer can find a job at the authoritative snap of his fingers, artists are bewildered in a taunting forest of jeers informing them that their skills have become "irrelevant." That is why we need these earnest, hurried meetings to give us the encouragement we need to find a job.

And indeed, our guest speaker did seem very earnest. It was perhaps his unconsciously borne desperation that made me feel very uncomfortable entering his lecture only five minutes after it had started.

And so it happened that last Tuesday I sat down. All eyes were on me, the late-comer; the last and only person to enter the hall after the lecture had begun. Why did I feel so itchy? Why was my hair standing on end? My big winter jacket motivated a significant amount of perspiration down my back, yet I feared its rustling too much to take it off. I became the outcast in the crowd. Somebody passed me an attendance list to sign, and when I turned to offer it to my neighbour, I was refused with a prim "we've already signed it."

Oh for God's sake! I was only five minutes late! I was sure that within a moment I would be able to take on the scolding role myself, as a tardier soul entered behind me. But no such soul came. It seemed that everyone had been as prompt as an engineer to the crack of an open keg.

So what was it that made everyone so prompt? Or so polite? Let me tell you another story.

Two weeks after the term began in January, our residence hosted a pub crawl. This was great. It involved a large, rented school bus, mountainous crates of beer, and a filthy, drunken horde of young men singing their asses off on the way to town. By the time we got to the drinking holes, we were too drunk to distinguish a drinking hole from a fire hydrant. There may have been some dancing women involved but, once again, they may have just been fire hydrants.

But what fun it was! Driving down to Halifax in a bus streamlined for a clientele of drunken morons who needed to bring the entire vehicle to a halt every twenty minutes to hunt down the people we had left behind at the pissing breaks we took every ten. Only two weeks into the term, this entertainment was very promising. What would they think of next?

Well. Another pub crawl! But his time, it would be hosted by Cutten House, which meant that although the same people would be coming and the bus would visit the same pubs, the people who telephoned the bus company would be completely different. The same week, although a day previous, Chase Court held a pub crawl, which of course was different because although the cost was the same and the time of departure differed by no more than ten minutes, the bus driver left-handed!

With a mighty effort, I had visited every single pub in Acadia University's home of Wolfville within three days of my arrival. The proud "on-campus bar" rivalled only the comfortably local "off-campus bar." As I settled into routine, I began to distinguish the subtle differences of going to The Axe and getting shit-faced versus getting a couple of two-fours at home and getting shit-faced. A veritable smorgasbord of entertainment!

But perhaps I am being unfair.

Transferring from the cynically mechanical University of Waterloo to Acadia, I expected nothing but the best. Acadia is small, picturesque, storied (the oldest building on a university campus is apparently Seminary House residence), and cradled in the small town of a province known for its outgoing, friendly population. At big, ugly, grey Waterloo, all anyone can ever talk about is getting out.

And overall, the smaller university is a hands-down winner. The people truly are friendlier, the buildings are nicer to look at, and the classes are less impersonal. In fact, like the seminar I talked about originally, I was surprised to find that you always excuse yourself when leaving a lecture early, or arriving late. It's not just that the classes are smaller, but there is a connection each professor feels with her students.

There is also the beyond-words convenience of the Acadia Advantage. Yes, we really do each get a laptop. And it's not a bad toy, re-evaluated each term to bring it up to speed with the latest incarnations of Diablo and most voluminous communications over ICQ. In the classrooms, every seat plugs in to the Web. Many of the students here are already more computer literate than many comp. scientists in Waterloo's programme.

However, I must sigh and admit the lack of pace characteristic of a Canadian small town. In first year, I took an English Lit. course as an elective, and one of the stories we studied concerned the perceptions of a

young woman moving from the small town to Toronto. Far from the portrait of bick bewilderment, this girl was disappointed to notice that the city-dwellers could not hold their liquor. She could drink any Torontonians under the table.

Toronto natives that I have met at Acadia have expressed the reverse sentiment: how can you look forward to getting brainlessly hammered every fucking Friday night?! The reality is that if you want to forget you have a choice of two bars every weekend (that works out to a minimum of 17 fri/sat visits to the same bar for a single term), you have to get hammered.

There is almost immediately one Waterloo victory that stands visibly over Acadia: ambition. In order to dream lofty goals, a student needs the driving, competitive force of something like Waterloo's Co-op programme, or at least a large, motivating student community. The danger of a small university is complacency: the feeling that you have pretty much done all you ever need to do. A large, competitive, impersonal university will at least teach you how to assert your individuality among a massive crowd.

At Acadia, the classes are much more comfortable, and the people seem to have a lot more common sense. There is a definite quality of pride that comes from living among historic buildings, one that can never take root in Waterloo's cement architecture. The greatest advantage is the opportunity to speak out and discuss in almost every class, not just a hand-raising exercise with the prof but a debate with the other students.

So while I can't say that a university like Waterloo offers the student anything near the freedom to think, communicate, and challenge that a smaller university does, at least it teaches ambition. The question is, of course, is that ambition is worth anything if it's based on a cynical need to escape the robotic madness of 10,000 people trying to steal your job.

Martin Jakubik is a Fourth Year Computer Science student at the University of Waterloo. He is currently at the University of Acadia pursuing a second undergraduate degree in English.

You can find his column in the Cannon every month. You can also find more written work on the internet at: www.ecf.uwaterloo.ca/~choi1firstperson.html

Surviving The Civil Engineering Cycle

In the up-and-down civil engineering job market, the best prospects now are in the U.S.

Laura Ramsay
National Post

When Rob Huehmer graduated from McMaster University in Hamilton, Ont., last April with a master's degree in civil engineering, he did what many others in his profession are doing: He got a job in the U.S.

Mr. Huehmer now works in Washington as a trials process engineer with U.S. Filter Corp., which he describes as the

world's largest manufacturer of equipment used to treat water and waste water.

His job involves working on membrane microfiltration projects his company hopes will ultimately become the primary U.S. means of treating drinking water.

"The recent downturn in the Canadian economy had a large impact in the water and waste water industry in Canada, and the general lack of action in Canada in developing comprehensive environmental legis-

lation did not provide positive indications of future employment opportunities in Canada," Mr. Huehmer explained about his decision to move to the United States.

His job will give him "greater exposure to environmental problems and potential solutions in one year than I would [get] in five years in Canada." As well, "the salaries offered by Canadian firms are substantially lower than those offered in the U.S. Engineers can expect salaries 40% to 45%

higher in equivalent Canadian dollars and pay lower taxes, he says.

Mr. Huehmer's experience is part of a trend. After a decade as the profession's poor cousins, civil engineers are in demand again, especially if they are willing to work outside the country.

The turnaround "is going to be like what's happened with mining," predicts Jose Pereira, manager of employment advisory services with the Professional Engineers of Ontario. "Mining is still fine, but it isn't [happening] in Northern Ontario, it's in South America, it's in Africa, it's all over the world. I think that kind of phenomenon will happen with civil."

When the recession hit in the late 1980s, governments stopped building roads, bridges, and sewer systems in favour of cutting budgets.

To survive, Canadian engineering companies looked overseas.

Peter Overton is director of marketing and communications with engineering firm Marshall Macklin Monaghan Ltd. in Thornhill, Ont., which helped build Terminal 3 at Pearson International Airport. He says the company has always done international work, but during the 1980s it focused mostly on projects in southern Ontario because they were plentiful and lucrative.

"To some extent we would have gone overseas anyway but I think the recession

Engineers who are partners in consulting firms or who are employed by companies with profit-sharing or bonus programs can earn significantly more than their base salary through variable pay programs.

galvanized us and other firms into looking abroad for work to offset the impact of the recession."

Now about 25% of the company's revenues comes from work done overseas. Current projects include a new airport terminal opened in Budapest in December which drew on expertise gained from Terminal 3, an oil refinery site clean-up in Barbados, a solid waste management project in St. Lucia, and an on-going sanitation infrastructure project in Belize.

Staff, which peaked at 530 during the construction of Terminal 3 and hit bottom at under 300 during the recession is now "back up to a little over 400."

Mr. Overton says "the real demand is for people with experience...the ones with five or six, up to 10 years' experience."

Civil engineers in Ontario earned significantly higher salaries than other types of engineers during the 1980s. In 1989 many were abruptly and permanently laid off and their salaries have trailed behind other types of engineers since.

A salary survey done in December by the Professional Engineers of Ontario shows that the median salary for consulting engineers in Ontario in 1998 was \$60,000, and \$65,000 for engineers working in construction, the two major sectors employing civil engineers.

"The high-tech sector pays \$10,000 to \$15,000 more," says Stephen Jacks, PEO program director who conducted the salary survey. Median salaries are \$74,500 for

continued on page 5
See Civil

BFC Steals

(part of)

The CANNON



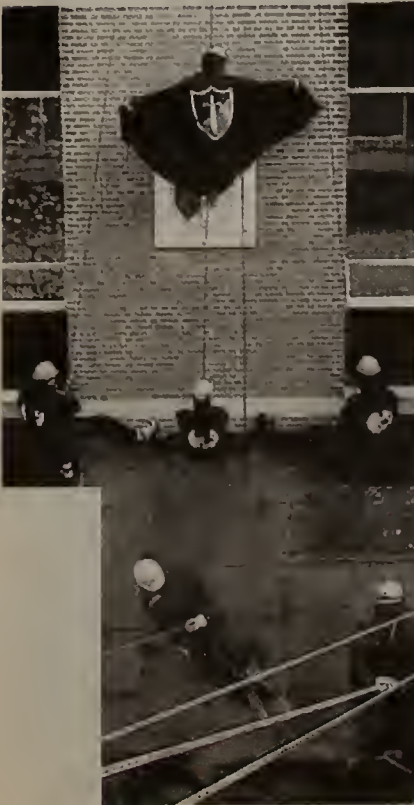
It is my duty, as the leader of a Bunch of Friendly Citizens, to inform you that the next 3 pages have been stolen. (*) Normally we steal the Toike Oike, however this year it has been so funny that every time we want to steal it, we laugh so hard that we forget to make any changes. This is a credit to the Emperor's skills. Normally we steal the second to last issue of a newspaper, however this year were in such awe of Skule™ Nite (the dry ice was really cool) that again we forgot. But finally, we did it. I would like to thank the Ministers of Erections, and the Minister of Nocturnal Events, and an Upperyear to be named later who stayed up till 6 am modifying the Cannon so that you, the engineering student, can know a little more about what we do each year.



(*) Well, mis-appropriated.



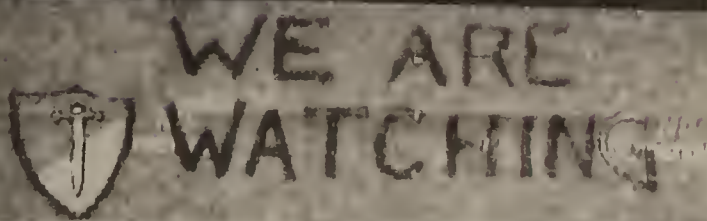
One of our first events teaches the in-coming Firosh to overcome their fear of heights, slip knots, and people in black. We began by wisking the Firosh off too a non-existent building in the wilds of DevRyerson. Once the Firosh completed the prescribed 6 week long basic repelling course, they were allowed to sit and watch the Ministers and I mount a plaque on the wall. Then we went home.



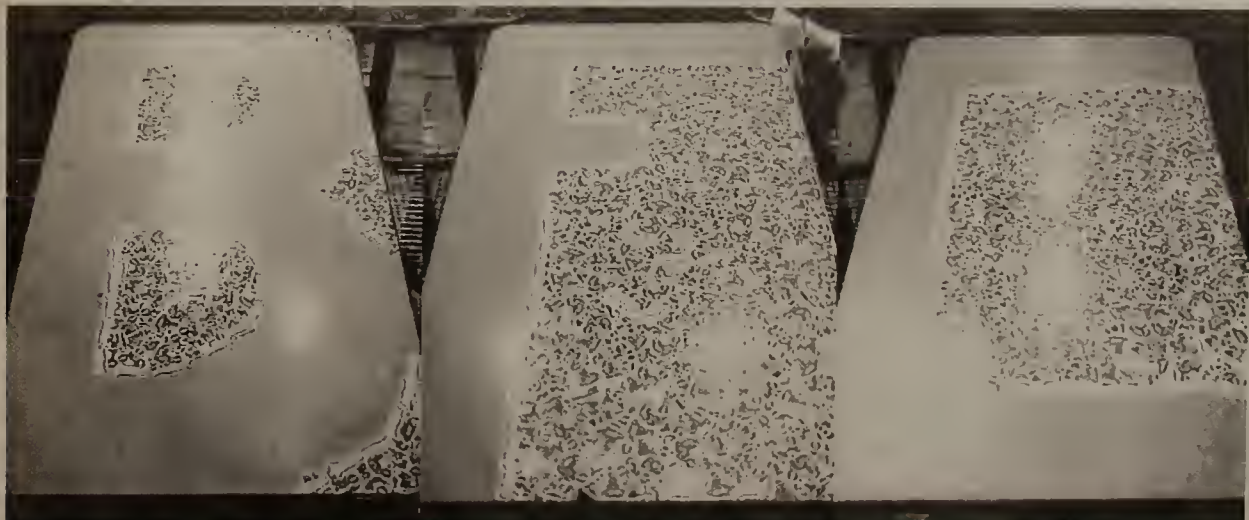
One of the most stressful times for us is Godiva Week. We must be on alert, ready to receive Godiva from her year-long slumber and entertain her with acts of Flrosh stupidity until her return to whence she came in a somewhat less than spectacular funeral pyre. If it were not for my brief appearance in the Mr. Blue & Goldpageant, I might have gone completely mad.

With midterms over, and exams rapidly approaching we all felt the intense pressure. No sooner had we finished asking for relief, but a car of unknown origin appeared on the lawn of Sandford Fleming. Rumours that it was President Prichard's car did not stop a group of determined students from pounding the poor car into the ground. If we had not been there charging for the privilege, the day might have been a total loss.





This is by no means a complete list of events that we have participated in.



In closing I would like to thank all the Ministers that helped make this year great. I would like to thank all those would-be Ministers for doing most of the grunt work. And to all those that feel pride when you see a BFC sticker boldly sitting atop a RyEng Sticker, remember,

WE ARE WATCHING YOU.

Engineer Elected as SAC President

8



By a narrow margin, Matt Lenner Comp 0T0 and Paul Kutasi Erindale, were elected to the positions of SAC President and Vice-President Wednesday night. The 65 vote margin separating Lenner and his opponent Ed Rusik widened to 75 votes when an official re-count was held the following day. When asked how the Engineering students felt about having an Engineer as SAC President a student identified only as MB replied "I think its about time we had an Engineer as SAC President, Lenner's a good guy, and we feel that he will get a lot accomplished."

Gradball 9T9 - The Speech from the Valedictorian



At Last I am an Engineer

By Trevor Mills

(sung to the tune of Barrett's Privateers, by Stan Rogers)

Oh the year was nineteen-ninety-four
(How I wish I was an Eng Sci now)
When a letter of grant came from the dean
To the best damn Skule(tm) I've ever seen
(God damn them all)

Chorus.

I was told this school would be a piece of cake
We'd fail no tests, shed no tears
And it only took me five long years
But at last I am an engineer

Oh Dean Mike Charles cried the town
(How I wish I was an Eng Sci now)
For a thousand brave kids all geeky who
Would make for him the undergrad crew
(God damn them all)

The first midterm was a sickening sight
(How I wish I was an Eng Sci now)
There were forty-nine questions all from hell
Thank God they let me ride the bell
(God damn them all)

One September morn we came to town
(How I wish I was an Eng Sci now)
A bunch of aspiring engineers

All dipped in purple and drinking beer
(God damn them all)

We all came in from far and near
(How I wish I was an Eng Sci now)
It only took me one short week
To be proud to call myself a geek
(God damn them all)

Some joined teams, some joined the band
(How I wish I was an Eng Sci now)
Some joined Eng Soc, some left Eng Sci
Some stayed, some went on P-E-Y
(God damn them all)

Now we're grown and more mature
(How I wish I was an Eng Sci now)
Some'll start Grad School some a new career
And we'll only drink imported beer
(God damn them all)

So here I sit at my last Gradball
(How I wish I was an Eng Sci now)
It's been five years since I came this way
And I just got my iron ring yesterday
(God damn them all)

U of T Engineers - The Future Americans of Canada?

We're here now, where are we going when we're done?

Vera Kan
CIV 9T9 + PEY

There's been a joke running some circles of Eng Scis that they are "the future Americans of Canada." That wouldn't be far off when a goodly handful head off for grad school or jobs south of the border, and more join them few in the years after graduation. I was really surprised then, to see that the National Post had turned its attention to the "poor cousins of the engineering profession" (their words, not mine!) and focused on a similar, growing trend with the civil engineers. It's a phenomenon that is applicable to every field of engineering, but something that hasn't been raised as an issue by either the media or the profession...until now.

Now, the National Post isn't exactly your cup-of-tea newspaper, evidenced by the fact that the thinnest part of the newspaper isn't necessarily the entertainment guide, it's often the front page section! I was thus pleasantly surprised to see that the writer of this article (found in the Financial Post section) made two salient points about the perennially suffering CIVs.

1) Jobs are available now, especially if

you're willing to work outside of the country. This is something every-CIV's favourite professor has often been quoted. "There are jobs if you just get outside of Toronto!" (R. Soberman)

2) Employers (as always) prefer to hire people with five-to-ten years of experience. As a senior engineer at my PEY placement puts it; you don't have to train these people as much as a fresh graduate, but their minds are still (relatively) flexible in adapting to new business strategies.

Number one can be a bit of a problem for most current U of T students today, since all of one's family and friends are here. Heck, some of us didn't even have to leave our hometown (Toronto) to go to university! But flip through any American engineering trade journal (Engineering News Record, would be the one for construction-minded CIVs) and there will be a chock-a-block classified section advertising for engineers, (usually those with five to ten years of experience.) Other big overseas (over-border?) draws include not just the job itself but the salary, the lower taxes, and most importantly, the opportunity for expanding your skills. Clearly we need a paradigm shift when confronted with the opportunity to go interna-

tional.

(I would be curious to hear from recent grads and returning PEY students if, like Mr. John Pocher quoted in this article, you found yourself doing things as a 3rd year student that year-old graduates were working on.)

The second part is a bigger problem for U of T students. How the heck are you supposed to get five-to-ten years of experience, when there aren't any entry-level positions, and there haven't been any for the last five-to-ten years? I pointed this out to that senior engineer at my PEY placement. Formerly in charge of hiring at his previous position, he admits that the five-to-ten year range was most preferred. Since everyone else had snapped up such workers, he spent half his time head-hunting for such individuals, and the half of his time hiring and training fresh graduates. This seems to be the case especially in the U.S. where nearly everyone who can be employed is employed. Good news for the class of 9T9!

For those with lingering doubts about taking a chance at a job away from Canada, you can always rely on this golden piece of logic: Future Americans of Canada can always come home but the window of opportunity never stays open long.

Civil Engineering Jobs

continued from page 4

engineers who work in data processes, \$72,220 for engineers in computer system development, and \$72,400 for engineers involved in hardware development. Industry-wide, the median salary for all kinds of engineers combined was \$68,000.

Mr. Jacks cautions that engineers who are partners in consulting firms or who are employed by companies with profit-sharing or bonus programs can earn significantly more than their base salary through variable pay programs.

Still, "if you wanted to make the big bucks you would try your hardest to get into the electrical program at [University of] Waterloo and wait for one of Bill Gates' people to come," Mr. Pereira says.

University students have taken note of this. Half of new civil engineering grads in the early '90s couldn't find jobs in their field and opted to take graduate degrees or to pursue careers in other areas.

Since then, students have bypassed civil engineering in droves in favour of electrical engineering and other computer-related pursuits. The University of Western Ontario will graduate only 30 civil engineers this year, its smallest number ever and half the size of classes a decade ago.

However, the numbers are picking up, says Dr. Kerry Rowe, chairman of the department of civil engineering at Western, and about 40 will graduate next year.

"Enrolments in civil engineering have always been cyclical," he says. "If there is a co-relation to the economy, it's always out of synch. There's a lot of work around at the moment."

Governments neglected infrastructure for years and now that they are balancing their budgets they're starting to pay attention to the decay in roads and sewage systems, he says.

"It's creating a big market, particularly in the U.S." where the neglect started about 10 years before it did in Canada.

And the chance to be involved in new projects in a huge market is as attractive as the high salaries for young Canadian engineers.

"Companies in the U.S. are more willing to take a chance on younger employees, to say 'go ahead and do this,'" says John Pocher, a McMaster graduate with a master's degree in civil engineering. He graduated in 1996, found a job in Mississauga, Ont., after an "intense" four-month job search and left 10 months later for a job as a project engineer in Atlanta with Atlantech International, where "the money was a lot better and it was a more interesting job." The company manufactures plastic netting used for soil stabilization and industrial purposes.

"When I was working Canada, people who had been there 18 months were doing things that I was doing" as a new hire, Mr. Pocher says. "It just seems in general you're thrown in the deep end a lot faster here. The pace of learning is greatly accelerated."

He'd like to return to Canada eventually "but not for a while, this job suits me fine."

Engineering Society Appointed Positions for 99/00

Chief Returning Officer:

Stores Manager:

Speaker:

Archivist:

Skulebook Editor:

Toike Oike Emperor:

Cannon Editor:

Darkroom Manager:

SUDS Managers:

Comp Sys Admin:

Web Site Coordinator:

Fl!rosh Handbook Editors:

SkuleNite Producer:

Ads Manager:

Project Magazine:

Christiaan Vandergrift

Matt Tully

Ashley Morton

Rebecca Feldman

Michael Iammarino

Adam Walker

Jean Cruz

Mi Li Ng

Dan Siegal

& Timothy Hong

Chris Davis

Ian Roberts

Erika Kiessner

& Paul Gahan

Wilfred Lam

TBA

TBA

News External

Articles that appear in News External Have been written by people outside the Engineering Society body and have been generously submitted for publication in the Cannon

Pop Renaissance Hits the ROM

Frank T Nakashima
Toronto Early Music Centre

The Toronto Early Music Centre presents soprano Julie Harris, accompanied by lutenist John Edwards, in the program "Popular Renaissance Songs of The Netherlands" at the Royal Ontario Museum on Sunday, April 11th at 2:30 p.m.

Throughout the Renaissance, many of the era's greatest composers came from The Netherlands – among them were Giaches de Wert (1535-1596), Cipriano de Rore (1516-1565), and Orlando di Lasso (1532-1594). Because their musical careers blossomed during their residency in Italy, the development of the Italian madrigal and church music of the period felt the strong influence of their mastery.

Meanwhile, back in the Low Countries, there was a burgeoning, cosmopolitan, middle class which was eager to find musical publications for domestic use. The astonishing variety of music to be found in the anthologies by Emanuel Adriaenssen (d.

1604) and Pierre Phalèse (1510-1573) met this demand – sophisticated madrigals, charming canzonettes, arrangements of chansons and native Dutch songs, old French dance music, and old masters such as Josquin Desprez (c.1440-1521) and Francesco da Milano (1497-1543).

Please come and join Julie Harris and John Edwards as they present these delightful songs from a relatively unfamiliar time and place. The Royal Ontario Museum is located at 100 Queen's Park (near the Museum subway). Admission is free with entrance to the Museum.

For more information, please contact:

Toronto Early Music Centre,
427 Bloor Street West
Box 17
Toronto, Ontario M5S 1X7
tel: (416) 966-1409
E-mail: temc@interlog.com
website: <http://www.interlog.com/~temc>

U of T Team Makes Atomic Breakthrough

Peter Calamai
Toronto Star Science Writer

OTTAWA - In a major scientific advance, University of Toronto researchers have developed a method to snap identical molecules together like Lego toys, clearing the way for a wide range of novel tailor-made materials.

The researchers have created a new, metal-like substance. They say it could find uses in everything from electronic noses - to sniff out drugs, or food contamination - to high-efficiency pollution filters.

The substance resembles materials found in semiconductors, but has so far been produced in only small quantities.

The technique vaults the U of T into the forefront in one of the hottest areas of current research worldwide. Called materials science, the research uses both physics and chemistry to produce new substances with predictable properties.

"Rather than using the old chemical techniques of heat-and-beat, or shake-and-bake, we're moving into materials that almost build themselves," explained professor Geoffrey Ozin, who supervises the U of T lab that did the Lego block research.

The breakthrough work was spearheaded by Mark MacLachlan, a 25-year-old researcher who is the first member of his family to attend university. He expects to get his chemistry Ph.D. this summer and do further studies at a top U.S. institute.

"I don't see a lot of future in making materials that just sit there, like plastics. The challenge is in making materials that have advanced applications," MacLachlan said.

That description certainly fits the new material reported by the Toronto researchers in today's issue of the influential British magazine Nature.

Hiding behind the formidable name of mesostructured metal germanium sulphides is what might be called the Bo Jackson of materials science - a substance that can excel in specialized applications as different in science as football and baseball are in sports.

One reason for the special properties of the substance is the size of the molecules. The suffix "meso" signals a size midway between micro and macro, in this case 10 times larger than normal inorganic molecules found in a laboratory.

"The action right now is all in the meso scale. The properties of materials change in very interesting ways in that region," Ozin said.

But to reach this prize, the U of T researchers had to solve a puzzle that had stymied other scientists: What liquid is a lot like water but different enough to dissolve the chemicals needed to tailor the new material, which weren't water soluble.

"I tried every chemical on the shelf and none of them worked," MacLachlan said.

"Then I came across something called formamide. Nobody in the lab had ever used it before although it's been around for years. And it worked."

Formamide's job was to dissolve both the germanium sulphide and a type of chemical called a surfactant, the active agent in soaps.

These soap-related molecules have a long tail that hates water and a head that loves it. Dissolved in the water-like formamide, the surfactant molecules form into circles like threatened musk-ox, with the heads outward and the tails inside.

The circles extend into long tubes and the tubes cluster together like a honeycomb.

This honeycomb acts as a mould or template for the germanium sulphide molecules which are drawn in by an electrical attraction.

"In effect, we create an inorganic replica of the organic structure. We cast it in stone," Ozin said.

"Around the lab we say it's a type of Medusa chemistry, if you remember the Greek myth of the woman whose gaze would turn people to stone."

Scientists Say Meteorite Hints At Life On Mars.... Again.

Steve Hunt
exn.net

Scientists from NASA presented a paper today in Houston that suggests a meteorite from Mars, found here on Earth, may contain evidence of life from the Red Planet. If this seems like familiar news, well, it is and it isn't. The same scientists made an announcement back in 1996 about a Martian meteorite called ALH 84001 which was found in Antarctica. They claimed that the small grey specimen showed evidence of microscopic bacterial life that could only have formed while it was still on Mars. But their claims were not universally accepted and the debate still rages on today.

Now it seems their attention has turned to something called the Nakhla meteorite. The same team, headed by Dr. David McKay of NASA's Johnson Space Center, says this very different specimen from the Red Planet also shows signs of fossilised bacteria from Mars. It may add credence to their original claims about ALH 84001.

The spheres in this photo are claimed by McKay and his team to resemble dividing bacteria

They say that the round and ovoid units on the Nakhla meteorite (found using an electron microscope) represent the mineralised remains of bacterial cell bodies. They even suggest that one particular filament is reminiscent of bacterial thread-like trails left behind by some bacteria here on Earth.

Their presentation today at the 30th Lunar and Planetary Science Conference in Houston, however, is sure to begin yet another round of scientific speculation - both for and against their claim. That said, if the reportedly hostile mood among the majority of scientists who heard McKay's presentation is any indication, their claims may not get an easy ride, scientifically speaking.

Nonetheless, Nakhla, is not a new find, nor is it an obscure one as Martian meteorites go. In fact, it's perhaps the most famous of the 13 known Martian meteorites that have so far been found on Earth. As meteorite expert Dr. Allan Treiman of the Lunar and Planetary Institute in Houston remarks,

"it fell on June 28th, 1911 at 9 in the morning in northern Egypt in the general area of Alexandria. About 10 kilograms fell in total, as a series of 40 small stones, ranging in weight from 1.8 kilograms down to only 20 grams."

Nakhla - named after the region in which it landed - was seen falling out of the sky by many individuals at the time, a rarity with meteorite landings. Subsequently, a lot of its fragments ended up in museums. But Nakhla even has the stuff of legend. As Treiman points out, "there's even an apocryphal report that it killed a dog. The actual description made it sound like it hit the dog

and the dog vanished in smoke."

But dog deaths aside, Nakhla has quite a different history from ALH 84001 - even before it ever landed on Earth. "They're really quite a bit different," says Treiman. "The most obvious way to tell them apart is the colour. The 84001 meteorite is grey. The Nakhla meteorite is nearly dead

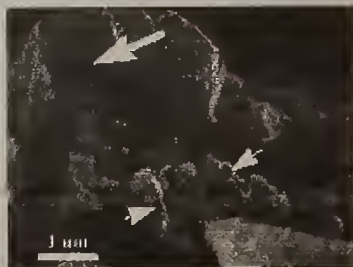
black inside. And it has these orange veinlets." But they're also different ages, according to Treiman.

"84001 formed about 4.5 billion years ago and its carbonate globules, which contain the supposed fossils in it, formed at about 4 billion years," he explains. "So these are very, very old. The Nakhla meteorite is much younger. It crystallized from lava about 1.3 billion years ago. That's a long time ago on the Earth but it's still only a third of the age of 84001. And the clays in Nakhla are about 700 million years old."

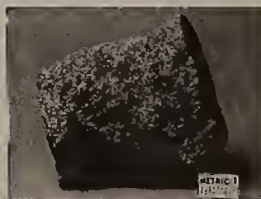
Because they're very different in chemical and mineral composition, Treiman reasons that 84001 and Nakhla must have come from different places on Mars because their ages are so different. As to whether Nakhla might contain traces of Martian life, that's a topic he's not yet ready to broach.

He does admit, however, that (unlike 84001)

Nakhla's composition does offer the "believers" in Martian life an added hope. As Treiman explains, "these orange clay-rich veinlets in Nakhla definitely had to have formed from liquid water. Nobody argues with that. And if there's liquid water, life is possible..."



The spheres in this photo are claimed by McKay and his team to resemble dividing bacteria



A section of the Nakhla meteorite

Teresa's Tantrum

Teresa Huang
Mineral 979

So I had a real interview. Or so I thought I had a real interview. See, I've had quite a few interviews before in the previous years but they don't count. Either the small company really needed someone, so they hired me on the spot. Or I had "meetings" with professors, and cheap labour seems to be always welcome in the research world. What I have learned from being an insignificant student employee though, is to always have things written down on paper. Otherwise one might run into the situation where 6 months after your contract has finished "Oh of course we are going to pay you... You're the first one in this very long *queue*!" Yeah, what they mean is that you are the first in the *stack*! What a heap of...

So I have digressed, as usual. In preparation for the possibility of me getting a real interview, for a real job, I signed up for one of those interview workshop things at the Career Centre. Let me first advocate that anyone who does not have ample interviewing experiences to go sign up for this marvellous workshop. (Then again, if you have been sending a lot of resumes and still do not have ample interviewing experiences, I might suggest that you sign up for the resume critique workshop, too) At the workshop, I learned about body language, I learned about confidence, and I learned about all those wonderful things that I wanted to know about.

Then *finally*, I got this notice for a real interview, for a real job, and for a real big company. I was nervous. I was excited. I was memorising my strengths and weaknesses-that-can-be-turned-into-strengths. I was at the interview. I was trying not to notice that the interviewer was twice my

height, kind of young and kind of cute. I was remembering to smile. I was ready to spew out my accomplishments. I was ready to unleash reasons why I am perfect for the job, my ambitions, my wonderful communication skills. I was ready to have witty answers to situational questions regarding conflict resolution. Oh boy I was ready, and confident. And this young interviewer twice my height opened his mouth "I haven't actually read your resume..." And I thought "Oh great." So I gave a verbal run down of my experiences. And I was still memorising my strengths and weaknesses. And I was ready to give him the sales pitch. Oh just ask the damned questions!!

So finally he was asking questions "Let's start with logic. You have a camel and 2000 bananas. You have to travel 400 miles. And the camel eats a banana per mile..." At this point my brilliant and sharp and witty brain was thinking "Huh? Camels don't eat bananas... do they? And wow his eye colour matches his shirt perfectly..." And he gave me more numbers, and he gave me more of these bizarre questions. And I stopped hoping that he would ask a normal question. I realized that he wasn't going to ask how good I would be for the job. He already knew the answer. And it was interesting. But what about my wonderful conflict resolution skills? Doesn't he want to ask me about that?

And this reminds me of a Hebrew curse that someone had once told me "May the spit of a thousand camels infect your armpits!" Now I just want to tell my young and twice my height and not-so-cute-any-more interviewer where he could shove that camel and the 2000 bananas during his spare time.

weeks in did I start to get the hang of things. Talking to upper year students really helped clear things up.

Design has probably been one of the most intense experiences I've had to go through to date. I've experienced quite the emotional yo-yo since the course began. I can be absolutely elated when a circuit of mine works, then fall into despair when my once perfectly working circuit fails miserably after being soldered in place. It can be frustrating at times, but it really is quite rewarding when something finally works.

Group dynamics are also an extremely important part of design. I had heard some pretty scary stories about friends hating each other after design was over, and that made me worry. I'm in a group with two good friends of mine and would have really hated to see our friendship end because of design. Well, it's been six weeks and I have to say that my fears have been unfounded. Not to say that I haven't seen the potential for trouble, but with some understanding, patience, and communication between group members a lot of problems can be avoided. Being supportive and congratulating each other for the little things always helps too.

With only six weeks left to finish our masterpieces, you can be sure that the stress level is going to increase. But despite the burns and shocks (electric and otherwise), I do have to say that I will look back on my design experience as a good one, even if for nothing more than its great character building properties. So come on out and take a look at our blood, sweat, and tears in action at the public demonstrations, happening on Wednesday, March 31st and Thursday, April 1st. Keep your eyes peeled for locations and times.

Mineral Engineering Club Report

Zach Vorvis
MIN979

"She's all yours, sir. All systems automated and ready. A chimpanzee and two trainees could run her!"

"Thank you, Mr. Scott, I'll try not to take that personally." - Scotty and Kirk, *Wrath of Khan*.

As, now there is a great engineer. I bet Scotty was a U of T grad. (Uhh...I guess that's actually "will be a U of T grad." Yeah right, cause he's not even born yet). Come to think of it, I don't remember seeing an ironing on his pinky, so he probably graduated from the University of Glasgow or something. Then did his post-grad at Starfleet Academy I guess. Anyway, what was I supposed to be writing about? Oh yeah, club report. Well, the last couple of months have been pretty crazy busy with assignments, tests, theses, and numerous social events. I might as well focus on the social events since they're the most memorable (the next day anyway). Our Iron Ring Party at the Madison Pub was awesome. Thanks to the department for footing (most of) the bill! On March 4th we had our Mineral Engineering Dinner at the Mandarin at Yonge and Eglinton. We were barely recuperated from the night before, but many people still managed to show up. On March 11th we will be sending up a team of 16 students to Laurentian University for the Mining Games. We will spend the weekend

there, with students from other universities across Canada. The events include competitions in blast design, mine rescue, mineral separation, drilling and rockbolt placement, muck haulage with a remote control scooptram, mine design, and surveying. Look for the Mining Games to be held at U of T next year, it should be really exciting. I can't think of anything else to add, except for the following inspirational words of Rudyard Kipling. He was a pretty cool guy. "We have forty million reasons for failure, but not a single excuse." - Rudyard Kipling. Good luck with finals. Zach Vorvis 978 + PeY Mineral Engineering Club President

Eng Sci Club Report

Pierre Duez
Eng Sci 070
Eng Sci Club Secretary

Well, it's been a challenging month - even with Reading Week to take the bite off, the activities have been thrown at us fast and furious.

A basketball tourney that finished well, a great Ski Trip (if you don't take the injuries into account), the Comp Smoker, a second movie night... all fun and games, right? Of course, the upper-years have had some peace of mind, knowing that at least they were not forced to spend their time in the dead-end Design labs. (We hope you OTs are still trouping... only a few weeks left!) We only have things like midterms and exams to deal with... the usual run of the mill.

We are now well over halfway through this term. Don't forget: the Spring term is always worse, so it's time to start bracing yourself for some good ol' Exam-time fun! (But before then, make sure to show up to our last twosmokers. This month: the Enviro smoker!) Take care, and good luck... you'll need it.

Club Reports

So... What is Second Year Design REALLY Like?

Karen Chang
EngSci 071

You know them all. They walk around with big transparent boxes, bags from Active Surplus, and tired looks on their faces. When you ask them what's wrong, they look at you and utter one word: "Design". You shake your head, and cringe. You've all heard the horror stories. From the sleepless nights and frustration to hating group members afterwards. If you've ever thought to yourself, "I wonder what it's

really like? Is it really as hard as it looks?" then read on! As a second year student, I'd like to think that I'm a pretty reliable source when it comes to this topic, but be warned that these are mainly based on my own personal experiences.

Workload! Everyone always wonders about this one. I even questioned how on earth I would be able to handle 4 other courses on top of having to construct a fully autonomous robot. I have to admit that I still find it a tad overwhelming at times. There really is no break to speak of. After I finish my usual homework, I can't stop and relax because there is always my design project to work on. I confess to feeling tired and overworked much of the time, but (and perhaps this is to my Professor's chagrin) I do try to make it a point to take design breaks. Taking a one-hour off is not going to make or break your project, so you may as well use it to save your already fragile mental and physical state from shattering. Another thing that I was worried about was my complete lack of knowledge on the subject.

Many of us walked into this course blind, without much previous experience to speak of. I still remember feeling completely lost as we began the course. It wasn't until a few

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French, English, Canadian, Year 2000.

Martin Jakubik
Acadia University

Apparently the French don't believe that New Year's 2000 will make any difference in their daily lives. Laughable, isn't it? And a trifle ignorant, n'est-ce pas? In their hexagonal logic, they believe that the coming of the second millennium will be "just another day."

Ha ha ha ha!

In Canada, the Globe and Mail reported that our Federal Gov't doesn't feel like spending much money on New Millennium Celebrations. The article was published in 1997 or 1998 (which was last year) and called the Federal Gov't a bunch of "philistines."

A philistine, according to the Ministère des Affaires Étrangères, in France, is "a person who is guided by materialism." Of course, the population of France last year was merely 60.9 million. Any materialistic philistines living in France would have certainly been long been accorded.

The British are the only smart ones. They're building a giant "Millennium Dome" and once they are done, they are going to put it in Greenwich, which is the oldest time zone. No philistines in Greenwich. The British are going to celebrate long and hard. This is not surprising considering how fond they are of drink and leading the world in ignoring the Chemical Brothers. When the ball drops in Times Square, it will be five hours after underground Britain has looped hardcore rhythms and funky breakbeats over classical Indian music. It will be time to shave when the collective finger points across the pond at the New York, but the wall outlets will be broken. The Times Square Sphere will bounce like bad Euro Cheques.

Buro Happold is the engineering company building the Millennium Dome. In fact, they are an engineering consulting company and they are not building the dome: they are "The principal provider of consulting engineering services to the Millennium Experience." The Millennium Experience is the moniker of the non-profit organisation that is going to sell beer to the Brits on New Year's Eve. Tony Blair has allowed the pubs to stay open late.

Some graphics of Tony Blair are available here: <http://www.newdeal.gov.uk/english/newsline/blair.asp>

On that note, the Canada's population ratio to France is available in a fun quiz format at this site: <http://web.idirect.com/~fslto/jeux/quiz.htm>. Buro Happold confidently boasts an in-your-face address at <http://www.burohappold.com>, and the Ministère des Affaires Étrangères will tell you all about France, complete with contemporary monochrome photographs at <http://www.france.diplomatie.fr/france/index.gb.htm>.

So what is it about the French that make them so reluctant to acknowledge the spiritual magic of the Millennium? And what makes them stand so close to you when they talk? In a recent telephone survey uninten-

tionally conducted among one French person, one declared that the coming holiday is going to be "no big deal."

How is that possible when just an 990 Franc train ride away, one is a mere 60 pound train ride away from an engineering marvel that could theoretically contain--were university students to get a hold of it--3.8 billion pints of beer? Why, this is more beer than there is in all France! It would be enough for a pint per person on earth, if not for all those pesky kids.

Clearly, the French are not considering certain factors when sniffing their tight nostrils at the Magical Millennium. And to think that we ever considered their language "romantic!" After a couple of voluptuous "vous" and purring "cherries," they are nothing more than a bunch of thick-tongued Chemical Happolds. Notice also how wary the British have been of the Euro, while France has led the race to embrace it despite the awful exchange rate.

So where does Canada fit into this equine equation? Well, at last report, we were still Philistines. We had "Piffling Plans for the Millennium." (This is an actual quote from a Globe and Mail article from last year. I don't want to get in trouble.) There's still time! We can still build our own Millennium Igloo! It'll be great! We'll make it out of ice and we'll fill it with 8.36 billion bottles of Labatt's. Then we'll cut holes in the lake and fish!

For over two years now I've been trying to convince people that the world is actually going to end in the year 2000. Nobody listens to me. Well, the truth is I don't think the world's going to end, but I do think that we may just have some of those big computer errors that everyone's so worried about. But even more importantly, enough people will convince themselves that they have been spiritually reborn that we won't be able to buy a Coke without bumping into some toga-wearing lunatic. All I'm trying to say is that once 2000 hits, we'll have to deal a lot more often with lunatics.

And for the record, Britain is too wet to hold a good New Millennium party. What's the point anyway? They're just some island stuck in the middle of nowhere, haphazardly engineering some monstrous dome that they're afraid to keep open too long for fear it will collapse, and possibly trying to fill it with beer. If you want to go to an island for the New Year, try Japan, because they'll all gather on the Pacific beaches to be the first to catch the rays. On the other hand, they'll go to work the next day.

The point is that Canadians are actually pretty good at partying. We can swell the streets in spontaneous parades and guzzle liquor quicker than our southern neighbours. It's pointless to ignore the New Millennium when, if we stick together, this could be a real good chance to get off work for a long time.

If we all cut a block of ice, we'll get that igloo up in no time.

